

Navy Warfare Development Command's

# NEXT

Winter 2015

Volume 3, Number 3



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# MESSAGE FROM THE COMMANDER



**RADM Scott A. Stearney**  
NWDC Commander

Welcome to the Winter 2015 edition of *NEXT* magazine. This issue we look at Fleet Experimentation (FLEX) and how Navy Warfare Development Command works together with our fleet partners to identify and close capability gaps through efforts like the Netted Sensors At-Sea Experimentation. In this quarter's Q&A, CAPT Paul Movizzo, Department Head of the NWDC Experimentation Department, introduces some of the valuable products produced by FLEX events. You will read about the increasing importance of modeling and simulation in support of experimentation and the evaluation of warfighting concepts and activities sustained ably by the NWDC N7 Department through the Navy Continuous Training Environment (NCTE). NCTE integrates and supports distributed synthetic training events around the globe. Other topics include the new Naval Surface and Mine Warfare Development Center, the role of Doctrine in the Navy. Thank you for reading.

**NWDC—“Forward for the Fleet”**

## MISSION

Navy Warfare Development Command develops and integrates innovative solutions to complex naval warfare challenges to enhance current and future warfighting capabilities.

## VISION

Navy Warfare Development Command operates at the speed of the fleet to stay at the forefront of innovation, focused on nonmaterial solutions for the near-term and the future.

Seamlessly combining our core competencies—concepts, experimentation, modeling and simulation, doctrine, and lessons learned—NWDC generates cost-effective solutions that arm the warfighter with the tools needed to meet the global challenges of the maritime environment.

Our people, know-how, and technology work in unison to effectively move operational capability forward . . . for the fleet.

## HISTORY

Naval Doctrine Command (NDC) was established in 1993 to provide the doctrinal foundation for naval forces to effectively contribute to joint and combined operations. NDC was disestablished and Navy Warfare Development Command was created as part of the Naval War College in 1998 at Newport, RI.

Navy Warfare Development Command was aligned under United States Fleet Forces Command (USFF) in 2002 in support of the Sea Trial process. As a result of base realignment and closure (BRAC) commission legislation, NWDC moved from Newport, RI, to Naval Station Norfolk, VA, in June 2010 (the BRAC move was fully completed September 30, 2010).

Commander, Navy Warfare Development Command was designated in 2008 as the Navy's Executive Agent for Concept Generation and Concept Development.

Navy Warfare Development Command is located aboard Naval Station Norfolk, VA. The headquarters facility meets current Leadership in Energy and Environmental Design (LEED) Green Building Rating System standards. The three-story, 84,849 square-foot building includes office space for more than 300 subject matter experts, including foreign liaison officers.

Navy Warfare Development Command headquarters is also the home of the Navy Center for Advanced Modeling and Simulation (NCAMS), a 10,000 square-foot, state-of-the-art modeling and simulation facility that supports the Navy Continuous Training Environment (NCTE), Experimentation, and Concept Generation and Concept Development.

Navy Warfare Development Command's  
**NEXT**

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**On the Cover**

NORFOLK, Virginia (March 20, 2014)—An E-2D Hawkeye assigned to the Tigertails of Carrier Airborne Early Warning Squadron (VAW) 125 flies over Naval Station Norfolk. (U.S. Navy photo by Mass Communication Specialist 2nd Class Ernest R. Scott/Released)

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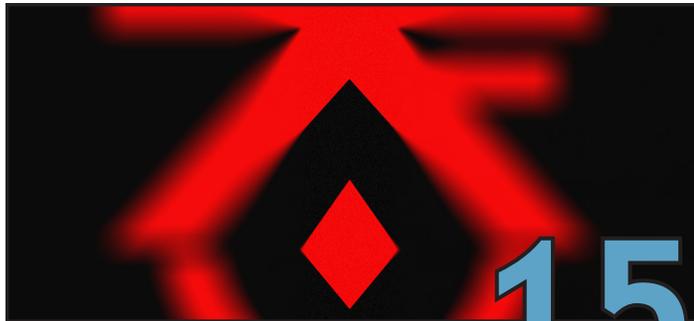
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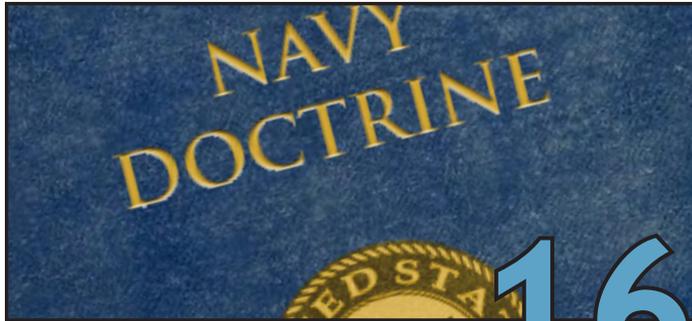
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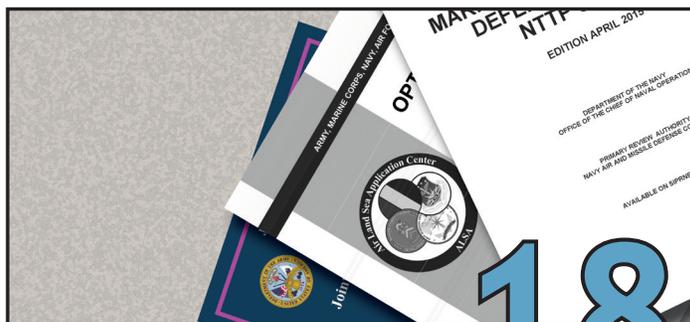
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ARABIAN GULF (November 13, 2011)—The amphibious dock landing ship USS Whidbey Island (LSD 41) transits the Arabian Gulf. Whidbey Island deployed as part of the Bataan Amphibious Ready Group, supporting maritime security operations and theater security cooperation efforts in the U.S. 5th Fleet area of responsibility. (U.S. Navy photo by Mass Communication Specialist 3rd Class James Turner/Released)

# NDLS

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The Navy Doctrine Library System is the authoritative repository of all approved Navy doctrine as well as joint, multiservice, and Allied doctrine used by the Navy. NDLS also serves as the central forum for developing and updating Navy doctrine and contains personalization features that allow users to save doctrine information for future reference and comment on doctrine that requires correction or update. The NDLS database contains not only the doctrine itself, but also its status, sponsoring organization, and other relevant metadata.

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**NAVY WARFARE DEVELOPMENT COMMAND**



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# Q&A

with CAPT Paul Movizzo, Experimentation Department Head



**NEXT:** Welcome aboard! Tell our *NEXT* readers something interesting about yourself.

**CAPT Movizzo:** Prior to reporting to Navy Warfare Development Command (NWDC), I was the Navy Team Chief at the Office of Security Cooperation-Iraq, and spent 1 year at our embassy in Baghdad managing security assistance programs for the Iraqi Navy and Coastal Defense Force.

**NEXT:** As the “new guy in town” at NWDC and Department Head of Experimentation, what was one of your first impressions about the command?

**CAPT Movizzo:** The amount of talent we have on the staff. Our experiment managers come from a variety of military backgrounds and their breadth of knowledge on the current challenges facing naval warfare matches exactly to creating and executing experiments that range from tabletop war games to complex at-sea events. It’s a privilege to work with so many experts and lead some of the Navy’s most tactically astute officers.

**NEXT:** Experimentation is doing a lot of exciting things for the fleet in 2016; where would someone find information about these upcoming events (or past events)?

**CAPT Movizzo:** Known to most people as FIMS, the Fleet Experimentation (FLEX) Information Management System

is located on NWDC’s Navy Warfighting Development collaborative portal on the SECRET Internet Protocol Router Network (SIPRNET) at: <https://portal.nwdc.navy.smil.mil>. FIMS is a gold mine for everything Experimentation. This SIPRNET token-enabled, classified database is the single point of entry for all Government-sponsored initiative proposals. Searching for upcoming experiment details can be extremely tedious, and oftentimes the experiment schedule of events changes by the hour.

By conducting your research on FIMS, you should be able to find the most up-to-date schedule and important points of contact. Let’s say that you need to leverage a brief that was shared at a final planning conference in 2012—no problem. Each event page (e.g., joint high-speed vessel; Laser Weapon System, etc.) contains final experiment reports, briefs, and photos that can be accessed by anyone with a FIMS account.

The challenge with a lot of our experiments is that the overall event is usually classified (as we are closely tied to addressing fleet capability gaps), and the information cannot be shared in unclassified forums—this is where FIMS comes in. FIMS was designed to gain 100 percent visibility on experimentation across the fleet; incite collaboration among similar projects; avoid duplication of efforts; and provide a venue for stakeholders to research and propose new, exciting initiatives.

It doesn’t matter if you are looking for past, present, or future FLEX initiatives; they are all archived on FIMS. Today, FIMS retains more than 7,500 documents from previous experimentation efforts.

FIMS is on SIPRNET at <https://fims.nwdc.navy.smil.mil>.

You can register for a FIMS account on the FIMS site in three simple steps. Fill out the required form for a new FIMS account. Wait to receive a confirmation e-mail with your log-in details. Once you are registered, you can then log in with your SIPRNET token.

**NEXT:** How would you describe the types of deliverables or products produced by FLEX events?

**CAPT Movizzo:** Experimentation has always taken pride in providing tangible and relevant products for the warfighter and valuable findings for the fleet participants. Our products are best described in three pillars: Doctrine; Final Experiment Reports, including Analysis; and Fleet Actions and Outreach.

**Doctrine:** This includes updates to existing doctrine or development of new doctrine that is validated over time and becomes Navy, joint, or multinational tactics, techniques, or procedures. It also includes emerging tactics to highlight urgent actions the fleet should be taking now (which we publish as a tactical bulletin).

Final Experiment Reports (FERs), including Analysis: Final Experiment Reports are written by the experiment leads and teams to summarize the results based on planning experiment objectives. The Analysis summary is the output of a rigorous data collection and analysis plan. All FERs contain an assessment piece that includes conclusions, findings, insights, and recommended warfighting changes in doctrine, organization, training, materiel, leadership and education, personnel, and facilities.

Fleet Actions and Outreach: Depending on the classification of the material, releasing information such as results, findings, and photos from an experiment can be through NWDC's unclassified *NEXT* magazine or classified Advanced Warfighting Journal quarterly e-publication and FIMS. Public affairs articles and press releases are also important tools to get the word out about Experimentation.

However, outreach does not always involve hard copy products. For example, FLEX often coordinates with Office of the Chief of Naval Operations to influence acquisition efforts or we collaborate with the science and technology community to inform product development. These stakeholder relationships also enhance our ability to inform fleet training and update warfighting curricula.

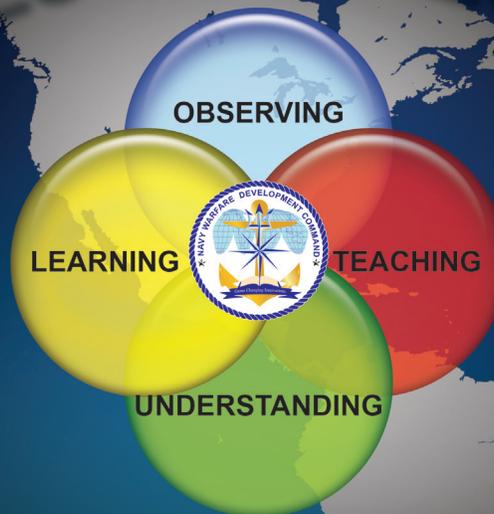
**NEXT:** What will be the biggest challenge for FLEX in 2016?

**CAPT Movizzo:** Every year presents new challenges for the Experimentation planners and managers for NWDC and FLEX. Increasing demands for both material and nonmaterial (doctrine, organization, and training) capability evaluations and concurrent delivery of tangible products to the fleet continue to be a big challenge for FLEX.

In fiscal year (FY)16, the biggest challenge for FLEX will be executing the Electromagnetic Maneuver Warfare (EMW) Campaign Plan concurrently with the FLEX FY16 Experimentation Plan. RADM Stearney has already made strides over the last few months by briefing the EMW Campaign Plan to relevant stakeholders at the Fleet Sync Conference in Newport, RI, in June and again at the Advanced Warfighting Summit and Warfighting Development Conference hosted here at NWDC in July. These briefing sessions have already inspired more discussion and alignment among the commands who will be directly involved with EMW tasks and experiments over the next few years.

With Commander, NWDC appointed as Action Lead for ADM Davidson's EMW Campaign, FLEX is well poised to quickly execute the fast-moving initiatives that get at the EMW challenges being faced across the fleet.✱

# Navy Lessons Learned



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# Modeling and Simulation

## SUPPORTS EXPERIMENTATION AND CONCEPT INNOVATION

By Ron Keter

NWDC Modeling and Simulation Operations Director

Navy Warfare Development Command (NWDC) N7 department has developed an extensive array of modeling and simulation (M&S) tools, interfaces, and network architecture and reach, to form the capability backbone of the Navy Continuous Training Environment (NCTE).

The NCTE is an integrating architecture (i.e., a system of networks; constructive simulation; simulation routing equipment; data translation devices; and command, control, communications, computers, collaboration, and intelligence systems) that forms a virtual range for distributed synthetic training and experimentation requirements. The NCTE supports the fleet synthetic training (FST) program which trains at the individual, watch team, unit, squadron, warfare commander, group commander, strike force, joint, partner nation, and interagency levels through a series of synthetic training events.

NWDC's M&S tools provide analytical rigor while supporting:

- ◆ Concept exploration and development
- ◆ The experimentation discovery process
- ◆ Findings validation and expansion
- ◆ The representation of human behavior in decision modeling
- ◆ Data reduction and analysis review.

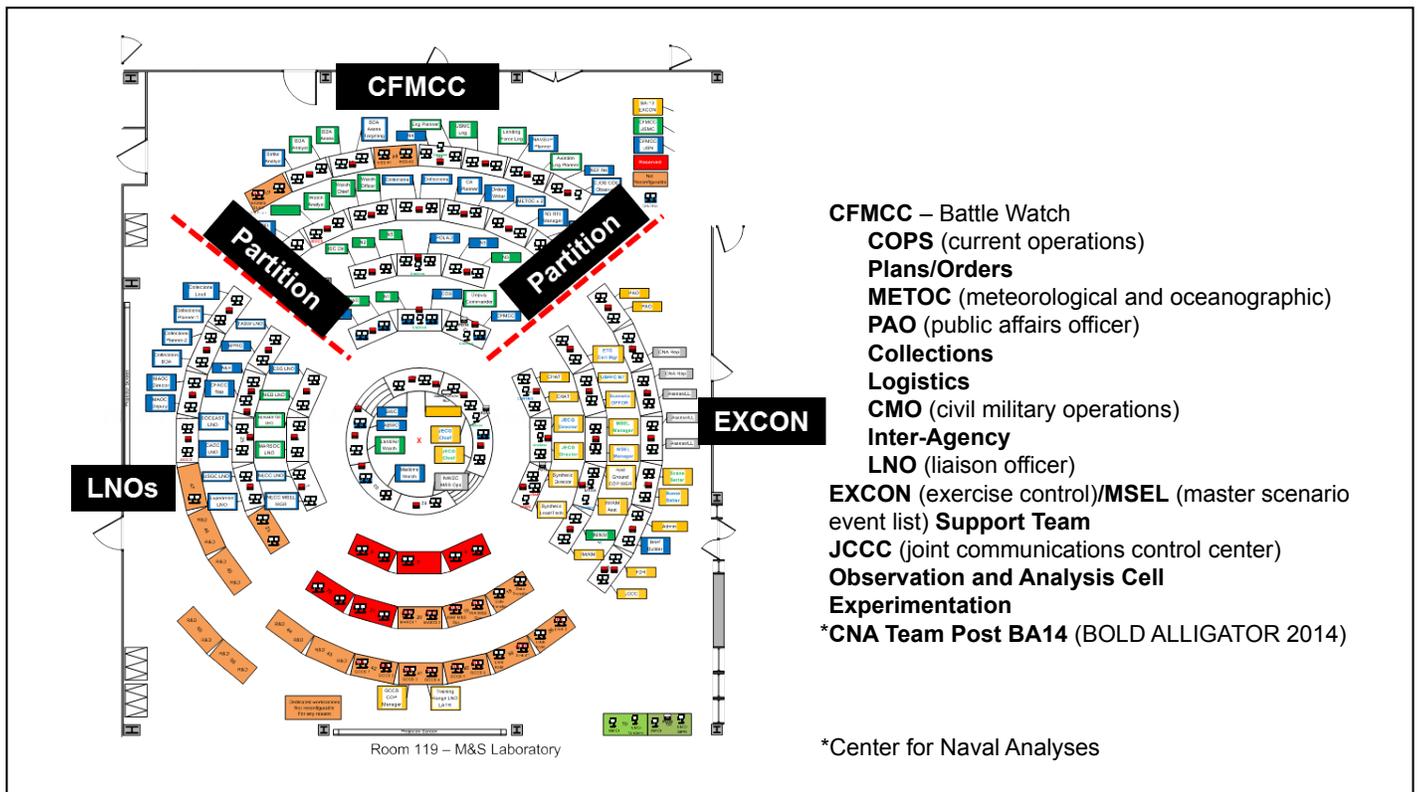
In support of fleet experimentation and concept development requirements, NWDC has developed an M&S tool kit that can support a wide variety of experimentation and concept development simulation needs.

### NWDC M&S Tool Kit

The NCTE and its associated M&S tool, the Navy Training Baseline (NTB) software suite, can provide a real-time, entity-based battlespace simulation to support human-in-the-loop experimentation. In this experimentation, the decision-making process, simulation of command, control, communications, computers, and intelligence systems and command and control (C2) nodes, and system efficacy in the tactical environment are key measurables. In addition to the NTB, NWDC can utilize in-house Monte Carlo (algorithm/event-based, faster than real time) simulations such as the Naval Simulation System (NSS) while also providing access via NWDC contract vehicles to Monte Carlo simulation systems that specialize in command, control, communications, computers, intelligence, surveillance, and reconnaissance modeling; campaign analysis; and course of action (COA) assessment.



*PACIFIC OCEAN (June 25, 2014)—Three U.S. Navy ships test maritime obscurants south of Guam to assess their tactical effectiveness for anti-ship missile defense. (U.S. Navy photo by Mass Communication Specialist 2nd Class Timothy Wilson/Released)*



The NCAMS configuration for BOLD ALLIGATOR 2014 accommodated more than 180 personnel for exercise control (EXCON) and the Coalition Forces Maritime Component Commander (CFMCC) cell.

## Navy Center for Advanced Modeling and Simulation (NCAMS)

NCAMS is a 10,000-square-foot facility designed to support the development, testing, and implementation of advanced warfighting training, concept development, and experimentation. It does this using the NCTE network and the NTB software suite which includes the Joint Semi-Automated Forces (JSAF) simulation; command, control, communications, computers, and intelligence systems; satellite communications; exercise control capability; and over 200 individual workstations. With NCAMS, NWDC departments have a ready workspace capable of supporting nearly any level of experimentation or war game-type event. NCAMS provides for the delivery of the synthetic battlespace, interoperability with United States and coalition command, control, communications, computers, and intelligence systems, and exercise control systems. The facility can be rapidly reconfigured for various workstations/positions.

The NCAMS configuration for BOLD ALLIGATOR 2014 accommodated more than 180 personnel for exercise control (EXCON) and the Coalition Forces Maritime Component Commander (CFMCC) cell.

In addition to the use of NCAMS, NWDC currently hosts the FacilitatePro (FacPro) collaboration software suite on the NCTE to support real-time feedback and after-action review capability during experimentation events, war games, workshops, and conferences held at NWDC. FacPro captures

brainstorming, COA development, criteria development, and ranking of preferences, including pros and cons, directly.

M&S support has been provided to a number of key NWDC Fleet Experimentation (FLEX)/Concepts and Innovation initiatives and external customers:

**Fast Attack Craft (FAC)/Fast Inshore Attack Craft (FIAC) Study (2009–10).** A series of small war games designed to experiment with different weapon systems and tactics in a heavy FAC/FIAC environment, JSAF was utilized for real-time weapon systems analysis in a variety of tactical and environmental situations. JSAF's ability to accurately model the maritime environment, including the use of historic weather patterns for environmental effects, provided a robust battlespace environment that enabled weapons and tactics experimentation.

**High Speed Weapon (HSW) Experiment (2010–12).** Sponsored by Naval Air Weapons Center-Weapons Division (NAWC-WD) China Lake, the HSW project developed a working HSW model in JSAF for experimentation in Exercise NORTHERN EDGE 2011 and 2012. The HSW model in JSAF was deployed against advanced JSAF opposition force (OPFOR) models during the synthetic portion of each NORTHERN EDGE exercise with the goal being to integrate the HSW into the fleet and carrier strike group (CSG) strike planning process. The NTB software development team produced after-action review tools that enabled NAWC-WD personnel to collect, archive, and visualize the data behind HSW sensors and engagement parameters.

(continued from previous page)

**Naval Obscurants Campaign (2013–14).** This was a Seventh Fleet experiment designed to provide the warfighter with tools to support the employment of naval obscurants in a live demonstration and to analyze and report on the efficacy of obscurants in an antiaccess area denial (A2AD) environment.

Three developmental and experimental simulations tested obscurant models versus designated OPFOR systems:

1. SLAMEM: a simulation of the location and attack of enemy missiles
2. GCAM: the modeling of the tactical and operational effects of naval obscurants at the theater level
3. JSAF: the modeling of tactical battlespace in real-time to:
  - a. assist in developing a naval obscurants CONOPS
  - b. expose FLEX and the Seventh Fleet N9 staff to naval obscurants tactical use considerations.

**USPACFLT Theater Communications Study (2013–15).** Sponsored by the United States Pacific Fleet (USPACFLT), NSS was employed to conduct studies focused on Pacific theater communications in a denied and degraded environment. Studies focused on the utilization of different theater communications architectures to counter environmental and OPFOR counter-C2 operations.

**Theater Logistics Planning Tool (2014–15).** Sponsored by USPACFLT, this is an example of nontraditional M&S support. Nontraditional M&S support consists of utilizing options and approaches that are outside the NWDC M&S baseline methodology of using existing simulation systems (see sidebar) to meet requirements. In this case NWDC M&S

and the M&S vendor SPA determined that development of a specific modeling tool or model methodology tailored for the requirement was the best course of action.

The spreadsheet-based Theater Logistics Planning Tool (Log Tool) was developed by SPA under the direction of NWDC to support PACFLT strategic logistics planning and assessment. The Log Tool provides PACFLT planners with the capability to rapidly test a range of logistic plans for suitability for operation plan COA development and the ability to identify limitations, find options to mitigate shortfalls, and assess planning factor changes.

**Advanced-Unmanned Aerial Vehicle (A-UAV) CSG Operations (2014–15).** Sponsored by U.S. Fleet Forces, the A-UAV CSG Operations study focused on the analysis of potential A-UAV employment options in defensive and offensive CSG operations. SLAMEM was utilized to model and analyze the future A-UAV sensor capabilities. GCAM supported the CSG/theater-level impacts of A-UAV operations. Similar to the naval obscurants experiment, SLAMEM produced detailed ISR performance results and detection tables which were then employed by and modeled in GCAM to analyze A-UAV mission effectiveness.

**LPD-17 Sector Air Defense Commander War Game (2015).** In this case, the FLEX team was able to leverage an existing FST exercise as a synthetic battlespace for a war game aboard an LPD-17 (San Antonio-class) vessel that was participating in the FST. JSAF is the primary simulation driver for FST events and provided the ships and aircraft required in simulating an air defense environment.\*

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**SIDEBAR**



**Navy Training Baseline (NTB).** Core NCTE simulation software, services, and interfaces. Comprised of the Joint Semi-Automated Forces (JSAF) simulation and key federates that enable simulation communications; network infrastructure; and command, control, communications, computers, intelligence, surveillance, and reconnaissance simulation.



**Naval Simulation System (NSS).** Monte Carlo simulation that provides comprehensive force-on-force M&S capability. NSS models individual platforms, weapons, sensors, command, control, and communications systems, and the responsive tactical decisionmaking of commanders in support of COA analysis. Two stand-alone suites at NWDC: Secret and TS/SCI.



**\*SLAMEM.** SLAMEM is an entity-level, event-based Monte Carlo simulation that supports two-sided command, control, communications, and computers, intelligence, surveillance, reconnaissance, and targeting simulation at the engineering-to-mission level. The two-sided nature enables modeling of a robust Red side intelligence, surveillance, and reconnaissance against which Blue seeks to penetrate.



**General Campaign Analysis Model (GCAM).** GCAM is a unit-based Monte Carlo simulation engine, developed for OPNAV N81, that provides campaign, mission, and engagement-level modeling to support a wide range of analyses. GCAM supports cost-benefit analyses, requirements definition, technology evaluation, CONOPS development, and COA assessment.

*NWDC M&S tools support both internal and external experimentation and concept development customers. Coupled with the use of the Navy Center for Advanced Modeling and Simulation (NCAMS), NWDC is capable of providing the means and venue to experiment with advanced warfare concepts, systems, and concepts of operations (CONOPS). The M&S Operations team provides the right simulation to fit experiments, wargames, concept development projects, etc. NWDC members have years of experience with simulation-supported experimentation and can provide valuable experiment design and simulation use case assistance.*

\*SLAMEM: Simulation of the Location and Attack of Mobile Enemy Missiles

# Getting Inside the Doctrine Decision Cycle with

# PleaseReview

*By Robert Wilhelm, NWDC Publishing Manager*

NWDC has invested in a new tool that enables a collaborative approach to doctrine development, significantly reducing both time and effort. This time-saving commercial product, called PleaseReview, is being used for more than just Navy doctrine.

PleaseReview is simple to use—especially for those accustomed to the traditional method of submitting feedback manually via prepared tables. Reviewers merely click on a particular section of text, type in recommended changes, provide rationale for their suggestion, categorize the comment (critical, major, substantive, or administrative), and press save. For designated authors, their work is almost as simple—decide whether to accept, reject, or modify suggested inputs, click on the decision, modify affected text if necessary, and save. The software does the remainder of the administrative work—recording inputs and decisions, tabulating them as desired, and incorporating decisions into a fully formatted document.

PleaseReview also introduces collaboration into document reviews—during the reviews, vice afterwards. The author and reviewers can see other's comments as

they are entered. Potential issues can be flagged and discussed early, allowing time for consequential corrections to be made while the review is still ongoing.

Publications developed with PleaseReview have been completed more than a month ahead of schedule. The authors involved in these projects have reported that using PleaseReview allowed them to focus on substantive issues vice administrative matters which, in turn, results in a higher quality end product.

PleaseReview resides within NWDC's command portal. Review participants must obtain an account (common access card required) via these URLs:

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***Publications developed with PleaseReview have been completed more than a month ahead of schedule.***

# FUSION FORWARD:

By CDR Joseph MacKay,  
Larry McElvain, and  
Greg Gecowets, NWDC  
Experimentation  
Department

## Expanding Battlespace Awareness

Navy Warfare Development Command (NWDC) refined the experimentation process by applying analytical rigor to a wide range of naval challenges as part of the Navy's Fleet Experimentation (FLEX) program. NWDC N8 designs and conducts a range of events from workshops and war games to live, virtual, and synthetic fleet experiments. Current U.S. Fleet Forces Command and U.S. Pacific Fleet guidance focuses efforts on improving near-term warfighting capability—potential solutions that can have a significant impact within the next 3 to 5 years.

However, from time to time, initiatives are proposed that require a longer look; questions that guide investment in long-term fleet capability. Throughout 2015, NWDC led the Netted Sensors 2015 (NS-15) at-sea experiment, the latest in a series of experiments establishing airborne networks to support machine-to-machine sensor connectivity and data sharing. The goal was to improve battlespace awareness and shorten sensor-to-shooter timelines while keeping friendly assets outside the range of threat systems.

To address the increasing threat posed by long-range weapons, six initiatives were selected and designed for a live-fly event. Each initiative showed the potential to improve the Fleet's ability to identify and determine location of maritime targets at stand-off ranges, with an eye on denied or degraded communications environments. The experiment executed 14 through 18 September, 2015, with flight operations and experiment control hosted at Naval Air Station Patuxent River, Maryland. Twenty-four sorties were flown by three modified EA-18G Growlers and one modified E-2D Hawkeye. Participating initiatives were sponsored by Naval Air Systems Command's E-2/C-2 Airborne Tactical Data System Program Office (PMA-231), F/A-18 and EA-18G Program Office (PMA-265), and the U.S. Air Force's 645th Aeronautical Systems Group (645th ASG). Ships and shore sites within the Joint Atlantic and Chesapeake Range Cooperative supported the experiment.

# NETTED SENSORS 2015 EXPERIMENT



*ARABIAN GULF (October 2, 2015)—An E-2D Hawkeye assigned to the Tigertails of Carrier Airborne Early Warning Squadron (VAW) 125 taxis during flight operations aboard the aircraft carrier USS Theodore Roosevelt. (U.S. Navy photo by Mass Communication Specialist 3rd Class Anna Van Nuys/Released)*

## Exercising Electromagnetic Agility

This experiment examined prototype software and systems for future fielding in programs of record. It represented a convergence of industry, acquisition community, and fleet users, with notable collaboration among defense industry participants. The event focused on capabilities to rapidly identify, locate, and track surface threats at standoff ranges. Specifically, the experiment sought to:

- ◆ Identify techniques and technologies that improve warfighter ability to rapidly find and fix objects in the battlespace.
- ◆ Identify techniques and technologies that allow decision makers to passively identify high-priority maritime targets from stand-off distances.

- ◆ Characterize information exchanges that improve warfighter ability to command and control activities in a communications-contested environment.
- ◆ Provide an integrated live-fly and command and control environment to reduce development and acquisition risk for sensor, processing, and networking technologies.

These objectives were examined through networking multiple airborne sensors systems, exchanging sensor data, and creating correlated and fused tracks for integration into fleet combat systems.



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The experiment used NAVAIR's E-2 Systems Test and Evaluation Laboratory (ESTEL) as a stand-in for a ship, serving as an afloat-representative host to data fusion hardware and software. Three modified EA-18G Growlers and one modified E-2D Advanced Hawkeye provided airborne sensors for the event. These sensors and processors were tied together with a unique mix of radios and network tools—tactical targeting network technology (TTNT) and network-centric collaborative targeting (NCCT).

- ◆ Platform connectivity was provided by prototype radios using the TTNT waveform. This format was designed to be used within the Joint Tactical Radio System family of radios. It provides higher capacity than current tactical data links, and is capable of sharing Internet protocol based traffic.
- ◆ Network functionality relied on the joint NCCT program. Managed by the U.S. Air Force, NCCT is responsible for developing core technologies to horizontally and vertically integrate intelligence, surveillance, and reconnaissance sensor systems both within and across intelligence disciplines.

### Netted Sensor Series of Experiments

Airborne netted sensor experiments using NCCT and/or TTNT were conducted in Trident Warriors 05, 11, and 13, providing incremental capability improvements. This series of experiments represents a notable example of collaboration among business competitors, acquisition community, and the fleet which came together to collectively solve a warfighter problem. To complete the experiment setup, the sensors needed targets to identify and locate. Fixed-site threat emitters were simulated using the

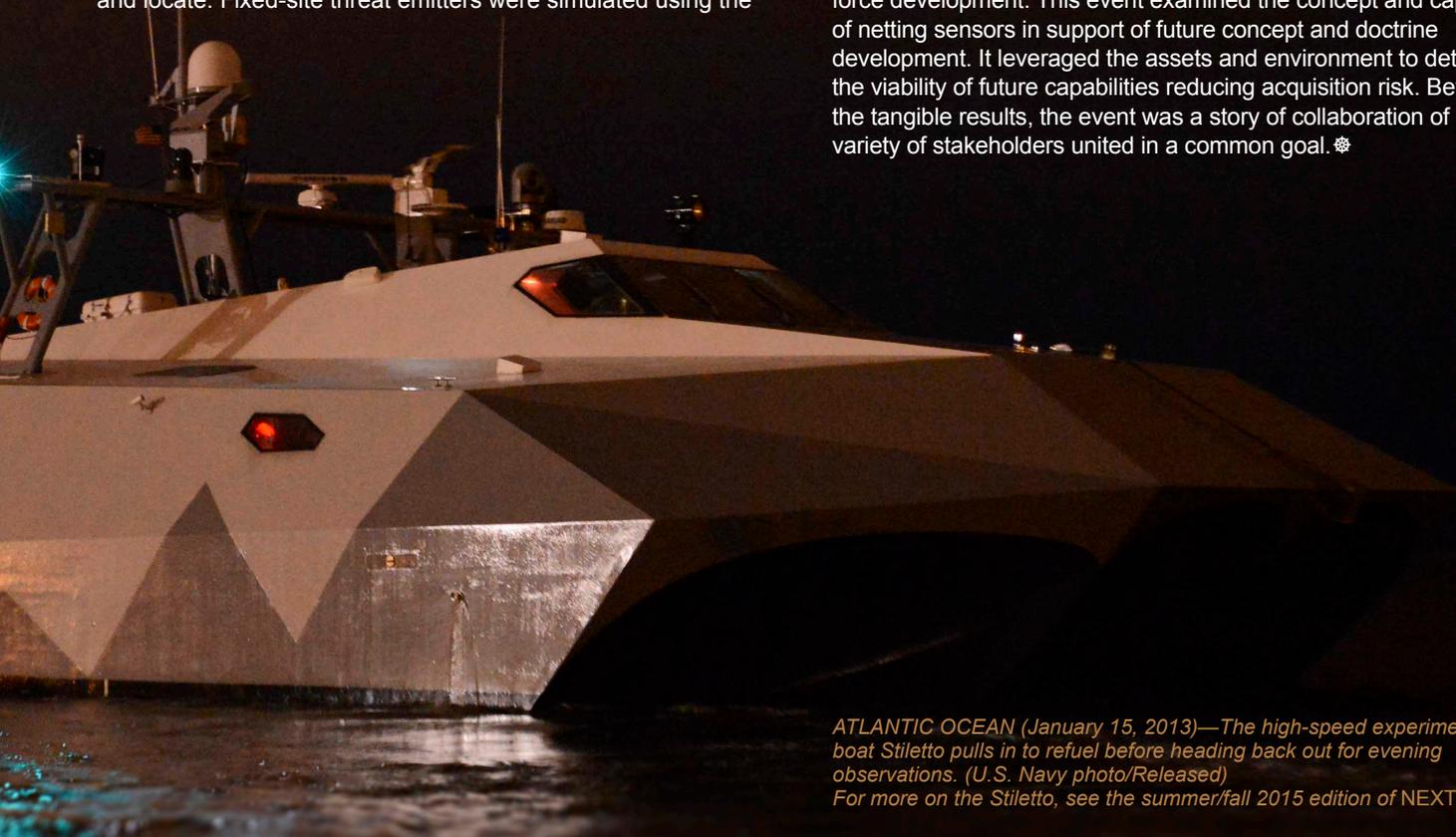
Atlantic Test Range radar assets, while USS *Whidbey Island* (LSD 41) and the Stiletto Maritime Demonstration Program provided afloat mobile targets of interest. Initiative providers also brought several test devices for use along the Chesapeake and Atlantic coasts.

### A Different Approach to Data Fusion

What makes this approach different than traditional voice and data link collaboration? The answer lies in the power of data fusion capabilities and geolocation techniques demonstrated by the initiatives. Sensor fusion is the combining of sensor data from disparate sources such that the resulting information has less uncertainty than when used individually. Each sensor has inherent characteristics—band of electromagnetic spectrum sensed, distance, and directional sensitivity, etc. Fusing sensor data from different systems combines the strengths of each system while mitigating their weakness. This experiment used existing aircraft sensor systems modified to interface with various data fusion capabilities. The fused sensor data produced geolocations using a variety of techniques.

How well did the initiatives perform? Experiment findings and recommendations are published in a final experiment report available on the Fleet Experimentation Information Management System (FIMS) attached to event 30855. You can access FIMS by visiting NWDC's Navy Warfighting Development collaborative portal on SIPRNET at: <https://portal.nwdc.navy.smil.mil> (listed in the "Links" box in the lower-right-hand corner of the home page) or go to: <https://fims.nwdc.navy.smil.mil>.

In terms of experimentation, the Netted Sensors 2015 At-sea Experiment demonstrated the role of FLEX in support of longer-term force development. This event examined the concept and capability of netting sensors in support of future concept and doctrine development. It leveraged the assets and environment to determine the viability of future capabilities reducing acquisition risk. Beyond the tangible results, the event was a story of collaboration of a variety of stakeholders united in a common goal. 🌟



ATLANTIC OCEAN (January 15, 2013)—The high-speed experimental boat *Stiletto* pulls in to refuel before heading back out for evening observations. (U.S. Navy photo/Released)  
For more on the *Stiletto*, see the summer/fall 2015 edition of NEXT.

# NAVAL SURFACE AND MINE WARFIGHTING DEVELOPMENT CENTER

By LT Derrick Ingle, NSMWDC Public Affairs

Just a few months after the Naval Surface and Mine Warfighting Development Center (NSMWDC) stood up, the new command is increasing the tactical proficiency of the surface fleet by synchronizing multiple warfighting mission areas under a single advanced tactics and training command.

NSMWDC was established June 9, 2015, as a Warfare Development Center (WDC) under a Secretary of the Navy-approved action to transition warfare centers of excellence to WDCs. Aviation, surface, undersea, and expeditionary WDCs are charged to enhance fleet warfighting capabilities and readiness across the theater, operational, and tactical levels of war.

NSMWDC, commanded by RDML Jim Kilby, is headquartered at Naval Base San Diego. NSMWDC reports to Naval Surface Forces under the command of VADM Thomas Rowden.

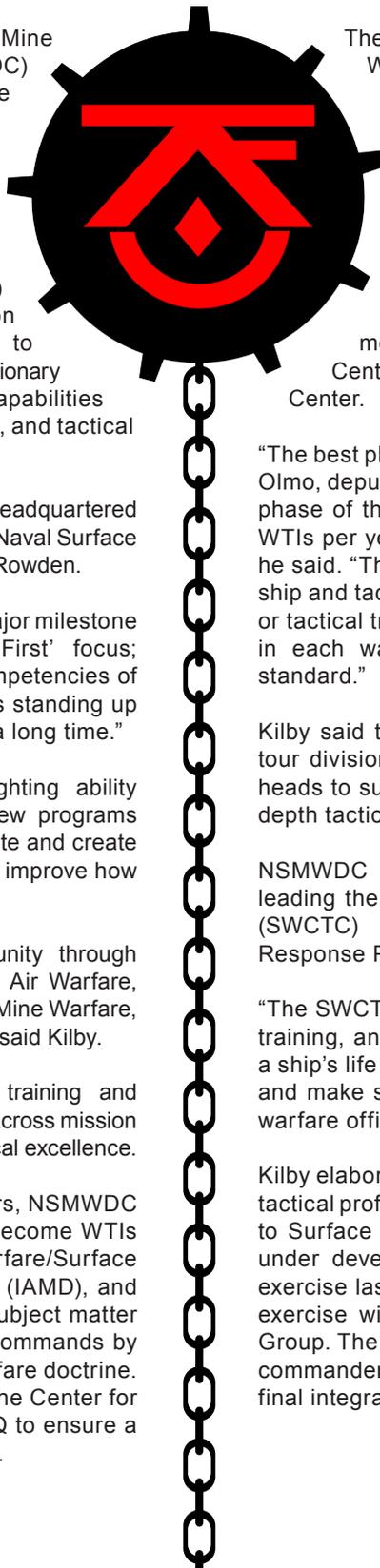
“The establishment of NSMWDC signifies a major milestone in how we support CNO’s ‘Warfighting First’ focus; advancing combat capability and warfare competencies of our Surface Force,” Rowden said at the unit’s standing up ceremony. “We’ve needed this command for a long time.”

NSMWDC’s sole focus is improving warfighting ability by creating tactically proficient operators. New programs create warfare tactics instructors (WTIs), update and create doctrine, and lead advanced training events to improve how the force fights.

“We will align the Surface Warfare community through synchronized tactics, doctrine, and training in Air Warfare, Amphibious Warfare, Ballistic Missile Defense, Mine Warfare, Surface Warfare, and Antisubmarine Warfare,” said Kilby.

NSMWDC also provides advanced tactical training and warfighting tactics, techniques, and procedures across mission areas to develop a standard for warfighting tactical excellence.

Akin to “Top Gun” for Surface Warfare Officers, NSMWDC trains junior officers in advanced tactics to become WTIs in Amphibious Warfare, Antisubmarine Warfare/Surface Warfare, Integrated Air and Missile Defense (IAMD), and Mine Warfare. These WTIs are the tactical subject matter experts for ships and staffs, and help their commands by teaching, writing, validating, and revising warfare doctrine. WTIs are located in Afloat Training Groups, the Center for Surface Combat Systems, and NSMWDC HQ to ensure a single training standard for the Surface Fleet.



There are 43 IAMD WTIs in the Fleet. A sixth IAMD WTI course in Dahlgren, Virginia graduates 12 new WTIs on December 18, 2016.

Amphibious WTI and Antisubmarine Warfare WTI classes begin in 2016.

Kilby said NSMWDC is a different construct for the surface community, one based largely on the naval aviation training and doctrine communities and learning from aviators’ proven model—the Naval Air Warfighting Development Center, formerly the Naval Strike and Air Warfare Center.

“The best place to invest is in our people,” said CAPT Frank Olmo, deputy commander of NSMWDC. “We’re in the initial phase of this new command. Our goal is to produce 110 WTIs per year with an emphasis on quality over quantity,” he said. “These WTIs will act as force multipliers on every ship and tactical training commands [afloat training groups or tactical training groups] to implement the best practices in each warfare area to achieve a single warfighting standard.”

Kilby said the select cadre of WTIs will be post-second-tour division officers who will go to ships as department heads to supplement senior warfighters with the latest in-depth tactical knowledge.

NSMWDC will also reemphasize mission readiness by leading the Surface Warfare Combat Training Continuum (SWCTC) in coordination with the Optimized Fleet Response Plan.

“The SWCTC will encompass individual training, unit-level training, and integrated training in the advanced levels of a ship’s life cycle,” said Kilby. “We will look at closing gaps and make sure we’re growing tactically proficient surface warfare officers.”

Kilby elaborated on SWCTC as an incremental approach to tactical proficiency by linking a ship’s underway basic phase to Surface Warfare Advanced Tactical Training (SWATT) under development. NSMWDC held a test trial SWATT exercise last spring and will evaluate a sequel to this pilot exercise with USS *Dwight D. Eisenhower* Carrier Strike Group. The SWATT insertion is aimed to prepare ships and commanders for advanced tactical readiness prior to their final integrated certification before deployment.✪

# The Role of Navy Doctrine

By Robert Wilhelm, NWDC Publishing Manager

“Navy doctrine”—the very term conjures up visions of dogmatic impediments to progress that must be circumvented by every Sailor; and nothing could be further from the truth.

Military doctrine—that of the United States Navy and other Services—is the embedded cultural DNA that helps drive effective action. Navy doctrine makes “decentralized planning, decentralized execution” the reality of how the Navy fights and wins. In one way or another, it has proven itself in more than 240 years of success, winning battles and wars.

Navy doctrine is both enduring and adaptive. It continuously evolves to adapt to changing missions, threats, and capabilities, but its core principles remain timeless. Consider the accompanying passage from Fleet Tactical Publication 143, War Instructions, written in 1944. Fundamentally, what is really different today?

Such doctrine does not impede imagination. In fact, having established a foundation for success, it demands imaginative, innovative application in execution. Still today Navy doctrine depends upon the initiative and creativity of its Sailors to achieve victory. Initiative, in turn, relies on the confidence that comes with experience and a thorough knowledge of one’s warfighting profession.

Navy doctrine encompasses more than enduring principles of action. It includes multi-unit tactical advice, platform employment techniques, and system-level procedures—tactics, techniques, and procedures (TTP). By recording the

collective, operational wisdom of the entire Service in a single library, Navy doctrine provides Sailors the information needed to exercise the initiative and creativity that they are empowered to wield.

The Navy of 2016 and beyond needs to be ready to fight in a communications-constrained environment, similar in many fundamental ways to the limitations that faced our Navy during World War II. Our Navy needs Sailors who understand how the Navy’s doctrine works in action, who immerse themselves in their profession’s TTP, and who ensure that their TTP remain current, accurate, and credible.

The Navy’s warfighting development centers exist in part to develop, validate, standardize, publish, and revise their communities’ doctrine and TTP. They cannot do this on their own. They rely heavily upon TTP users themselves—community citizens—to share what they know so that it can be accurately recorded and benefit others.

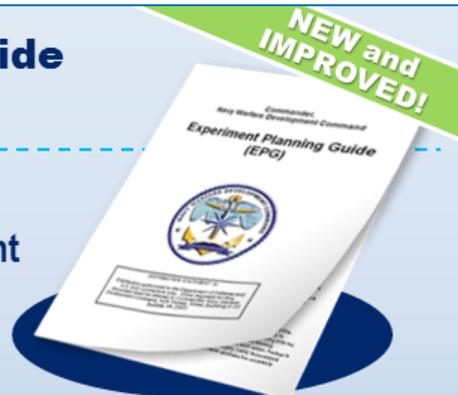
Navy doctrine is accessible three ways. It may be found at NWDC’s Navy Warfighting Development collaborative portal at <https://portal.nwdc.navy.smil.mil>. It is home-ported in the Navy Doctrine Library System (NDLS) at <https://ndls.nwdc.navy.mil> and <https://ndls.nwdc.navy.smil.mil>. It also resides on the SECRET Internet Protocol Router Network as a library within collaboration at sea. The introductory pages of every NDLS publication contain hyperlinks, allowing you to easily contact the responsible NWDC doctrine action officer or to input change recommendations on the spot. Alternatively, you may forward any inputs to NWDC at [NWDC\\_NRFK\\_FLEETPUBS@navy.mil](mailto:NWDC_NRFK_FLEETPUBS@navy.mil). Your feedback is always welcome—and essential.✪

## 2015 Experiment Planning Guide (EPG) Revision Complete

The EPG is a practical guidebook with information and references for experiment planners and operators to conduct the full range of military experimentation.

### Revisions include:

- New legal section
- Updated planning checklist
- Updated M&S section
- Updated engineering section
- Updated product content
- Updated federally funded research and development centers section



Available on the Fleet Experimentation Information Management System (FIMS) on the NWDC’s Navy Warfighting Development collaborative portal at <https://portal.nwdc.navy.smil.mil/awd/> or at <https://fims.nwdc.navy.smil.mil>

## Preface

### Purpose

War Instructions 1944, derived from experience, is issued to indoctrinate officers in a common concept of naval combat warfare, and fighting procedures. Acceptance and understanding of these basic principles reduces the necessity for detailed instructions in orders.

### Scope

War Instructions 1944 defines the doctrine of command, operation of ships and fleets, and encounters with the enemy. All paragraphs assume that there is a state of war or armed resistance, actual or probable.

Amplification of this doctrine, with application to specific circumstances, is found in Navy Regulations, General Tactical Instructions, Current Tactical Orders and Doctrine U.S. Fleet, and other appropriate publications.

### Section VII. Doctrines of Action

233 The following general doctrine of action governs the operations of our naval forces.

- (a) See that the lower echelons understand and concentrate on the objective. Decisive success is attained by selecting the proper objective for immediate action, and concentrating on it all moral and physical force available.
- (b) Provide every unit which can be made available at the time and place where the decision is sought, in order to gain overwhelming superiority. To provide the maximum force to attain his immediate objective, a commander may have to reduce his subordinate commands to the minimum required for local security and may have to take large risks in areas of lesser importance.
- (c) Never conduct a passive resistance, regardless of weakness, even though thrown temporarily on the defensive, but by activity and counterattack gain the initiative, conceal weakness, and retain the offensive spirit.
- (d) Seize and retain the initiative when acting on the offensive, strategically or tactically, thus disorganizing the plans of the enemy and forcing him to conform to our plan. Make every effort to gain the initiative when acting on the defensive.
- (e) Exploit immediately favorable situations resulting from well laid plans, or from chance. Exploit initial successes at once to accelerate their effect. Extend such victories to complete annihilation of the enemy. Speed of execution contributes to the retention of the initiative and the security of weak units. As the main concentration of any command is made at the expense of subordinate forces, the commander strikes at the earliest moment with maximum speed. Minutes may decide the victor.
- (f) Make every effort to surprise the enemy. Surprise is a most potent weapon and is a factor of superiority in itself. It is attainable not only in timing, but in methods of attack, weapons, materials, and even concepts of war. A force surprised is at least partially disorganized and demoralized and has difficulty in regaining the initiative and coordinating and concentrating its physical strength. It follows naturally that our own commanders must not be surprised.

234. The following specific tactical doctrine governs:

- (a) Plan and train carefully. Execute rapidly. Simple plans are the best plans.
- (b) Act quickly, even at the expense of a "perfect" decision. This is preferable to hesitation and possible loss of boldness and initiative.
- (c) Never remain inactive in the vicinity of the enemy.
- (d) Make the most of the few chances that arise to damage the enemy or destroy his ships without waiting for a better target, unless required by orders to do so.
- (e) Endeavor to bring a superior force to bear upon that portion of the enemy force which for the time being cannot be supported.
- (f) Go into action with your entire force and keep tactically concentrated until the enemy has become disorganized.
- (g) Deliver the attack from such direction as to gain the advantages of favorable wind, sea, and light conditions, if possible without delaying the engagement.
- (h) Sink enemy ships. It is usually better to sink one than to damage two.
- (i) Never surrender a vessel or aircraft to the enemy. Sink or destroy it if there is no other way to prevent its capture.
- (j) Use all weapons in effective range, with the maximum intensity, and continue the action until the enemy is annihilated.

# NAVY DOCTRINE UPDATE

The Navy Warfare Development Command (NWDC) publishes the Doctrine Update to communicate changes to primarily Navy doctrine and provide other useful doctrine information. The update provides a synopsis of recently published or updated publications, lists of any new joint and Allied publications, and Navy publications that are in development. Doctrine expresses operational institutional wisdom. The Navy produces doctrine to guide the employment of forces during operations and serve as the basis for training and professional military education.

NWDC functions as the overall approval authority of Navy doctrine publications, with designated primary review authorities functioning as the leads in the development and maintenance of each specific publication. The validity and usefulness of NWP, NTP, and NTRPs depend fundamentally on the quality of the processes for:

1. Developing new publications
2. Reviewing and updating existing ones
3. Recommending cancellation of outdated publications.

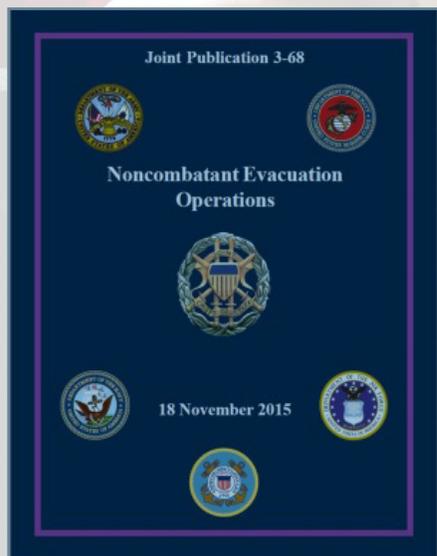
Doctrine requires frequent input from those who use it, and all Sailors play a role in developing doctrine and keeping it current. Official and unofficial recommendations and comments may also be submitted via the publication-commenting feature of the Navy Doctrine Library System (NDLS):

NIPRNET: <https://ndls.nwdc.navy.mil/default.aspx>

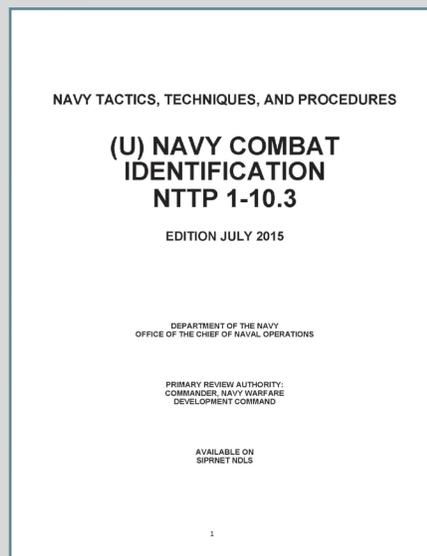
SIPRNET: <https://ndls.nwdc.navy.smil.mil/default.aspx>

Comments and recommendations may also be e-mailed to [NWDC\\_NRFK\\_DOCTRINE@navy.mil](mailto:NWDC_NRFK_DOCTRINE@navy.mil) or mailed to Commander, Navy Warfare Development Command, ATTN: Doctrine, 1528 Piersey Street, BLDG O-27, Norfolk, VA 23511-2723.

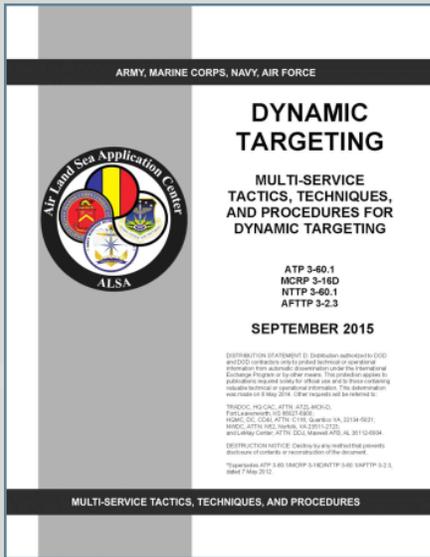
Points of contact for this update are CDR Tom Singleton at [thomas.singleton@navy.mil](mailto:thomas.singleton@navy.mil) for general questions and for queries regarding electromagnetic maneuver warfare, please contact CDR Ray Dumont at [raymond.n.dumont@navy.mil](mailto:raymond.n.dumont@navy.mil).



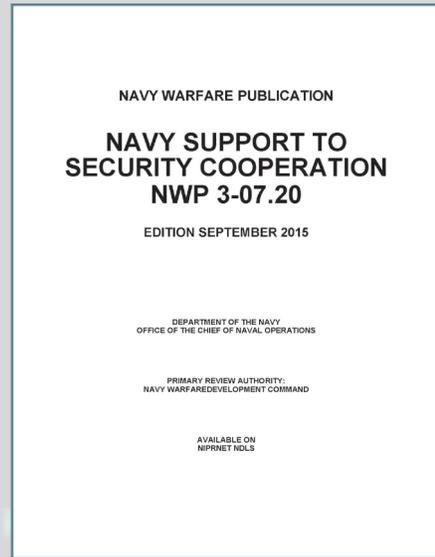
Noncombatant evacuation operations are conducted by the Department of Defense (DOD) to assist in evacuating U.S. citizens and nationals, DOD civilian personnel, and designated host-nation personnel whose lives are in danger from locations in a foreign nation to an appropriate safe haven. JP 3-68 details the planning, command authorities, roles, coordination, and interaction to execute a noncombatant evacuation operation. Due to the unique nature of this operation, there are special considerations and limitations commanders must ensure they are aware of prior to execution.



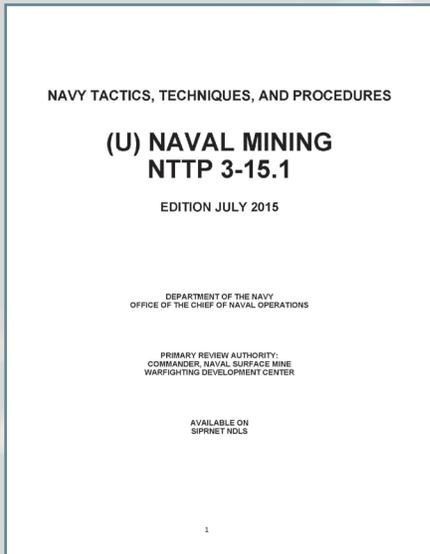
NTP 1-10.3 (U) Navy Combat Identification presents the combat identification (CID) process across the spectrum of naval warfare. The proper execution of CID increases combat effectiveness and prevents fratricide. This publication sets forth TTP to guide tactical commanders and their superiors, senior watch standers, and system and equipment operators in the conduct of their warfighting duties.



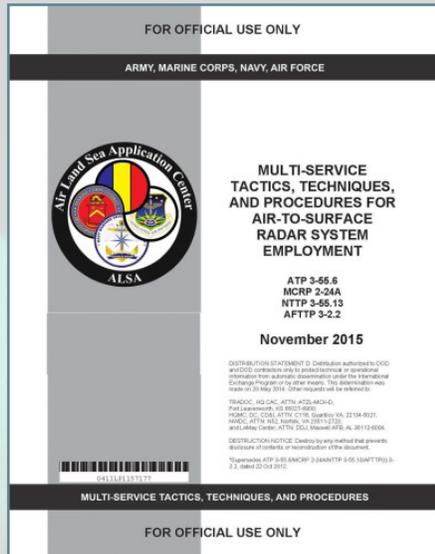
This publication for dynamic targeting (DT) is a single source, descriptive reference guide to assist component and Service commanders and their staffs in planning, targeting, and processing surface (land or sea) targets, by using the DT process. It is the MTTP used by Services and components in joint and multinational combined operations, including operating with other United States departments and agencies.



This publication provides guidance for Navy support to Department of Defense security cooperation and provides Navy guidance and procedures for supporting geographic combatant commander's security cooperation objectives and theater campaign end state. The primary audiences for this publication are commanders and staffs of Navy component commands and Navy tactical force headquarters. It further provides strategic context for U.S. international engagement and security sector assistance with partner nations. It describes a whole of government efforts working to shape the strategic environment to protect U.S. and partner nation's interest.



This publication provides comprehensive guidance and descriptions of all facets of mining operations. It details the types of minefields and their objectives, the command and control of mine forces, international law and rules of engagement, descriptions and explanations of mines, and includes strike planning and minefield planning. The appendixes provide technical mine information and supporting information for planning and effective naval mining.



This publication covers theater-level, air-to-surface radar systems and discusses system capabilities and limitations performing airborne command and control; wide-area surveillance for near-real-time targeting and target development; and processing, exploiting, and disseminating collected target data. This publication applies to all commanders and their staffs requesting and using surface situational awareness data. It provides tactical-level warfighters coordinated mission planning, tasking, and execution guidance to request and use the air-to-surface radar support system.

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## THE FOLLOWING DOCTRINE HAS BEEN PROMULGATED SINCE THE LAST EDITION:

### NAVY/MULTI-SERVICE

NTTP 3-02.4.1, Multi-Service Tactics, Techniques, and Procedures For Explosive Ordnance

NWP 3-07.20, Navy Support to Security Cooperation

NTTP 3-15.1, Naval Mining

NTRP 3-20.6.30M, (U)WPB 110 Class Tactical Publication

NTTP 3-55.13, Multi-Service Tactics, Techniques, and Procedures For Air-to-Air Surface Radar System Employment

NTTP 3-57.2, Multi-Service Tactics, Techniques, and Procedures For Defense Support of Civil Authorities

NTTP 3-60.1, Multi-Service Tactics, Techniques, and Procedures For Dynamic Targeting

NTRP 4-02.22, Multi-Service Tactics, Techniques, and Procedures For Treatment of Chemical Warfare Agent Casualties and Conventional Military Chemical Injuries

NTTP 5-01.3, (U) Multi-Service Tactics, Techniques, and Procedures For Operation Assessment

### JOINT

JP 3-05.1, Unconventional Warfare (FOUO)

JP 3-50, Personnel Recovery (including appendixes A and E on SIPRNET)

JP 3-61, Public Affairs

JP 3-68, Noncombatant Evacuation Operations

JP 4-01.5, Joint Terminal Operations

JP 6-0, Joint Communications System

### RECENTLY PROMULGATED ALLIED DOCTRINE

Allied publications are distributed to the fleet via the Allied Publications Electronic Library (APEL) DVD-ROM series and on SIPR NDLS under the library tab. The current APEL release is dated June 2014. If you have not already done so, to see all Allied publications you must request NATO access on both NDLS NIPRNET and SIPRNET sites via the "Request NATO Access" icon on their respective home pages.

ATP-01(G)(1), Volume I Allied Maritime Tactical Instructions and Procedures.

AECP-02/MECP-02(D)(1), NATO Naval Radio and Radar Radiation Hazards Manual

ALP-4.1(A)(1), Multinational Maritime Force Logistics

AMP-11(A)(2)(SUPP), Naval Mine Warfare Information—Data Transfer And Mine Warfare Data Centre Interoperability

AMP-13(A)(1), Vol I Introduction and Definition of Terms for NATO Sea Mines

AMP-13(A)(1), Vol II Characteristics of NATO Sea Mines

AMP-13(A)(1), Vol III Characteristics of NATO Exercise and Training Sea Mines

AMP-15(A)(1), Conf Supp Confidential Supplement to Standards for Naval Mine Warfare Acoustic Measurements

ANEP-89(A)(1), Design Criteria for Replenishment Aspects of New Construction Naval Vessels

ATP-02(C)(3), Naval Cooperation and Guidance for Shipping (NCAGS) Manual

ATP-03.4.1.2(B)(1), Multinational Maritime Support of Humanitarian Operations

ATP-31(D)(1), NATO Above Water Warfare Manual

AMP-12(A)(2), Catalog of Mine Warfare Computer Programs

APP-11(D)(1), NATO Message Catalog

### NAVY DOCTRINE IN DEVELOPMENT:

The following is a listing of all Navy doctrine in various stages of development at NWDC. Please see the figure at the end of the listing to see how to submit comments. This process can also be used for promulgated doctrine to be considered when it is up for review.

### NWP

NWP 2-01, Intelligence Support to Naval Operations (PRA: Navy Warfare Development Command)

NWP 3-02.1.4M, Defense of the Amphibious Task Force (PRA: Expeditionary Strike Group Two)

NWP 3-07.2, Navy Antiterrorism/Force Protection (PRA: U.S. Fleet Forces Command)

NWP 3-10, Naval Expeditionary Warfare Operations (PRA: Navy Expeditionary Warfare Command)

NWP 3-12, Cyberspace Operations  
(PRA: Fleet Cyber Command)

NWP 4-02, Naval Expeditionary Health Service Support  
Afloat and Ashore  
(PRA: U.S. Fleet Forces Command)

NWP 4-08, Navy Supply Operations and Other Logistics  
Services  
(PRA: Naval Supply Systems Command)

## **NTTP**

NTTP 1-05.1M, Religious Ministry Lay Leader  
(PRA: Navy Warfare Development Command)

NTTP 2-02.1, (U) Strike Group and Unit Level Cryptologic  
Operations  
(PRA: Navy Information Dominance Forces, Suffolk)

NTTP 3-01.4, Multi-Service Tactics, Techniques, and  
Procedures for Aviation Urban Operations  
(PRA: Air Land Sea Application Center)

NTTP 3-01.42, Joint Suppression of Enemy Air Defense and  
Antiradiation Missile Employment (JSEAD/ARMJ)  
(PRA: Air Land Sea Application Center)

NTTP 3-01.5, Aegis Core Tactics  
(PRA: Naval Surface and Mine Warfighting Development  
Center)

NTTP 3-02.2, Supporting Arms Coordination in Amphibious  
Operations  
(PRA: Naval Surface and Mine Warfighting Development  
Center)

NTTP 3-03.4.3, Strike, Coordination, and Reconnaissance  
(PRA: Air Land Sea Application Center)

NTTP 3-05.5, Naval Special Warfare–PE  
(PRA: Naval Special Warfare Command)

NTTP 3-05.8, Cordon and Search  
(PRA: Air Land Sea Application Center)

NTTP 3-07.2.1, Antiterrorism  
(PRA: U.S. Fleet Forces Command)

NTTP 3-09.2, Multi-Service Tactics, Techniques, and  
Procedures for the Joint Application of Firepower  
(PRA: Air Land Sea Application Center)

NTTP 3-10.2, Navy Intelligence Exploitation Team  
Operations  
(PRA: Navy Expeditionary Combat Command)

NTTP 3-10.3, Navy Expeditionary Logistics Support  
Operations  
(PRA: Navy Expeditionary Combat Command)

NTTP 3-11.37, Multi-Service Tactics, Techniques, and  
Procedures for Chemical, Biological, Radiological, and  
Nuclear Passive Defense  
(PRA: U.S. Army Chemical Schools)

NTTP 3-13.1.1, Submarine Information Operations for the  
Warfighter (U)  
(PRA: Undersea Warfighting Development Command)

NTTP 3-13.14, Surface Electronic Warfare Guide  
(PRA: Navy Information Operations Command Norfolk)

NTTP 3-13.2, Navy Information Operations Warfare  
Commander's Manual  
(PRA: Navy Information Operations Command Norfolk)

NTTP 3-13.3, Operations Security  
(PRA: Navy Information Operations Command Norfolk)

NTTP 3-14.1, Space Tactics Manual  
(PRA: Fleet Cyber Command)

NTTP 3-13.21, (U) Surface Mine Countermeasures  
Operations  
(PRA: Naval Surface and Mine Warfighting Development  
Center)

NTTP 3-15.22, (U) Airborne Mine Countermeasures (AMCM)  
(PRA: Airborne Mine Countermeasures Weapon Systems  
Training School)

NTTP 3-15.23, Underwater Mine Countermeasures  
(PRA: Naval Expeditionary Combat Command)

NTTP 3-15.24, Mine Countermeasures in Support of  
Amphibious Operations  
(PRA: Naval Surface and Mine Warfighting Development  
Center Detachment Point Loma)

NTTP 3-15.31, Submarine Special Operations Manual,  
Mining  
(PRA: Undersea Warfighting Development Center)

NTTP 3-20.32, Surface Ship Gunnery  
(PRA: Naval Surface and Mine Warfighting Development  
Center)

NTTP 3-20.8, Multi-Service Tactics, Techniques, and  
Procedures for Air Operations in Maritime Surface Warfare  
(AOMSW)  
(PRA: Air Land Sea Applications Center)

NTTP 3-21.2, Coordinated Submarine Operations  
(PRA: Submarine Force United States Atlantic Fleet)



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NTTP 3-21.22, Submarine Sonar Search Manual  
(PRA: Undersea Warfighting Development Center)

NTTP 3-21.52.06, Combat Control System Employment  
Manual AN/BYG-1(V) APB-07 (U)  
(PRA: Undersea Warfighting Development Center)

NTTP 3-21.61.20, (U) AN/WSQ-9 Signal Analysis System  
Employment Manual  
(PRA: Undersea Warfighting Development Center)

NTTP 3-21.55.04, Expendable Doppler Penetrometer  
Employment Manual (U)  
(PRA: Undersea Warfighting Development Center)

NTTP 3-32.2, Assured Command and Control (U)  
(PRA: Navy Warfare Development Command)

NTTP 3-50.3, Survival, Evasion, and Recovery  
(PRA: Air Land Sea Application Center)

NTTP 3-59.3, Naval Amphibious Surface Manual  
(PRA: Navy Expeditionary Combat Command)

NTTP 4-02.4, Expeditionary Medical Facilities  
(PRA: Bureau of Medicine and Surgery)

NTTP 4-02.7, Health Service Support in a Chemical,  
Biological, Radiological, and Nuclear Environment  
(PRA: U.S. Army Medical Department Center and School)

NTTP 5-01.1, Restricted Water Transit Tactical Planning  
Guidance  
(PRA: Navy Warfare Development Command)

NTTP 6-02.2, Multi-Service Tactics, Techniques, and  
Procedures for Tactical Radios  
(PRA: Air Land Sea Applications Center)

## **NTRP**

NTRP 1-03.5, Defense Readiness Reporting System-Navy  
Reporting Manual  
(PRA: OPNAV N43)

NTRP 3-07.2, Weapons Handling Procedures  
(PRA: U.S. Fleet Forces Command)

NTRP 3-11.25, Contamination Avoidance  
(PRA: U.S. Army Chemical School)

NTRP 3-11.32, Potential Military Chemical/Biological Agents  
and Compounds  
(PRA: U.S. Army Chemical School)

NTRP 3-20.6.22M, WMEC 270 Class Tactical Publication  
(PRA: Atlantic Area U.S. Coast Guard)

NTRP 3-20.6.23M, WHEC 378 Class Tactical Publication (U)  
(PRA: Surface Tactical Development Group)

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*PACIFIC OCEAN (May 4, 2012)—Aviation Ordnanceman 1st Class Garrett Thompson, left, and Aviation Machinist's Mate 3rd Class Coby Basinger, refer to an integrated electronic technical manual while inspecting an F/A-18C Hornet in the hangar bay aboard the Nimitz-class aircraft carrier USS Carl Vinson (CVN 70). (U.S. Navy photo by Mass Communication Specialist Seaman Apprentice Andrew K. Haller/Released)*

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*PACIFIC OCEAN (December 18, 2010)—Aviation Electronics Technician Airman Stouweed Innocent troubleshoots a tactical air navigation receiver/transmitter aboard the aircraft carrier USS Carl Vinson (CVN 70). (U.S. Navy photo by Mass Communication Specialist 2nd Class James R. Evans/Released)*

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*U.S. 5TH FLEET AREA OF RESPONSIBILITY (October 24, 2013)—Sonar Technician (Surface) Seaman Alejandro Sanchez, left, and Sonar Technician 3rd Class Charles Granger during an integrated training exercise aboard the guided-missile destroyer USS Mason (DDG 87). (U.S. Navy photo by Mass Communication Specialist 2nd Class Rob Aylward/Released)*

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**NTP 4-02.4 (1st Draft)**  
**Expeditionary Medical Facilities**  
Draft Date: 02/01/2011

Stock Number: None  
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**Expeditionary Medical Facilities**  
Draft Date: 02/01/2011

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